

Appendix B: Ergonomics Survey 2

ERGO RULE: Economic Survey

Section: Introduction & “Demographic” Questions.

Please answer the following questions as best you can. If you do not have exact information use your best estimate. If your company has more than one office or work site in Washington answer only for the site that is receiving this phone call. For companies, such as construction or temporary worker services, please answer for all sites where workers supervised from this site are working.

This survey will ask questions about efforts to provide ergonomic and safety solutions at this work site . Ergonomics is the design of jobs, tasks or work places to take into account workers’ capabilities and limitations thereby making workplaces safer and more productive. Ergonomics related injuries involve damage to the joints, ligaments, tendons, muscles, related vessels and nerves from such risk factors as repetitive and forceful motions, heavy and frequent lifting, awkward postures, and vibrating tools. In this survey we are interested only in gradual onset ergonomics related injuries that occur over a period of time. Examples include, but are not limited to, low back injury from over exertion, tendonitis, and carpal tunnel syndrome.

1. How many employees work at this location? Please include full-time, part-time and temporary employees. [RANGE=0-999999]
 1. _____ [RECORD NUMBER]
 2. Don't know
 3. Refused
2. a. Of the [QN1 Answer] employees, how many are full-time employees? (Full-time are those employees that work more than six hours per day or more than 32 hours per week) [RANGE=0-Answer QN1]
- b. Of the [QN1 Answer] employees, how many are temporary or contract employees? (Temporary or contract employees are those who are not directly on your company payroll) [RANGE=0-Answer QN1]
- c. How many of the jobs at this location consistently require overtime work? [RANGE=0-Answer QN1]
- d. How many of the jobs at this location involve any type of incentive pay or piecework pay system? [RANGE=0-Answer QN1]
3. How many employees does this work site hire each year, on average?
 1. _____ [RECORD NUMBER]
 2. Don't know
 3. Refused
4. I'm going to read a list of general job types often found in companies like yours. Then I am going to have you tell me which, if any, of these job types you have at this work site.
 1. [A LIST OF CATEGORIES SPECIFIC TO THE 1-DIGIT SIC CODE OF EACH BUSINESS WILL APPEAR HERE].
 2. None of those listed.
 3. Don't know.
 4. Refused.
5. a. How many [each job type identified in QN4 will appear here] do you employ at this work site?
 1. _____[RECORD NUMBER FOR EACH JOB TYPE IDENTIFIED IN QN4]
 2. Don't know.
 3. Refused.
- b. Which, if any, of these job types have higher than average worker absenteeism or turnover?

1. _____[RECORD EACH JOB TYPE IDENTIFIED]
 2. Don't know.
 3. Refused.
6. How many workers' compensation cases were filed in each of the following three years as a result of ergonomics related injuries?
1. 1996_____ [RECORD VERBATIM]
 2. 1997_____ [RECORD VERBATIM]
 3. 1998 _____ [RECORD VERBATIM]
 4. Don't know
 5. Refused
7. How much did the workers' compensation program pay out for these claims in each of the following three years?
1. 1996_____ [RECORD VERBATIM]
 2. 1997_____ [RECORD VERBATIM]
 3. 1998 _____ [RECORD VERBATIM]
 4. Don't know
 5. Refused
8. How many workers' compensation lost workdays were recorded in each of the following three years as a result of ergonomics related injuries?
1. 1996_____ [RECORD VERBATIM]
 2. 1997_____ [RECORD VERBATIM]
 3. 1998 _____ [RECORD VERBATIM]
 4. Don't Know
 5. Refused

Section: Workplace Analysis: Identification and Assessment of Ergonomic Related Hazards

Subsection: Workplace analysis

Workplace analysis consists of two steps 1. Identifying jobs and work environments that pose potential hazards for ergonomic related injuries and 2. Assessing jobs and work environments to find what causes the hazards and how to fix them.

The identification step of workplace analysis may involve reviewing accident reports, and workers' compensation claims, as well as walk-through inspections to look at the way work is being done.

9. Have you conducted the first phase of workplace analysis, which is identifying jobs at your work site that have ergonomic related hazards?
1. Yes (CONTINUE TO QN10)
 2. No (CONTINUE TO QN10)
 3. Don't know (CONTINUE TO QN10)
 4. Refused (CONTINUE TO QN10)
10. Which of the following methods are used at your workplace to identify jobs with potential ergonomic related hazards? [Check all that apply]
1. Review of injury and illness data
 2. Review of workers' compensation
 3. Review of medical or insurance records.
 4. Review of first aid log.
 5. Walk-through inspections
 6. Ergonomic checklist
 7. Employee feed back
 8. Reports by a physician or health and safety professionals.
 9. Other [RECORD VERBATIM]
 10. None
 11. Don't know

12. Refused

Survey branch point: Ask the following questions only if answered “yes” to question (#9) OR at least one “item” from question (#10): one affirmative answer, two questions. If respondent answered “NO”, “DON’T KNOW” or “REFUSED” to BOTH questions (#9) AND (#10), then skip to text above question 18 and proceed forward: two negative answers, two questions.

11. As a result of conducting workplace analyses, which **specific** jobs were identified as having ergonomic related hazards?
1. [RECORD VERBATIM THE LIST OF JOBS PROVIDED BY THE INTERVIEWEE].
 2. None [SKIP TO 13]
12. How many workers are employed in each job type you identified as having ergonomic related hazards?
1. [RECORD THE NUMBER OF WORKERS FOR EACH JOB TYPE IDENTIFIED IN QN11].
 2. Don't know.
 3. Refused.
13. Can you give an estimate of the average time required per job for the identification of ergonomics-related hazards?
1. zero to 10 minutes
 2. 10 to 20 minutes
 3. 20 to 30 minutes
 4. 30 to 60 minutes
 5. more than an hour
 6. Don't know
 7. Refused
14. Who conducted the work place analysis to identify ergonomic related hazards at this work site?
[CHECK ALL THAT APPLY]
1. Owner
 2. Plant manager
 3. Other plant supervisor
 4. Human resources/Personnel department
 5. Industrial hygienist or other health and safety personnel
 6. Occupational or physical therapist
 7. Occupational health nurse
 8. Physician
 9. Industrial engineer
 10. Ergonomist
 11. Outside consultant: _____ Private sector, _____ L&I.
 12. Other _____
 13. No one
 14. Don't know
 15. Refused

Assessing jobs with ergonomic related hazards

If you identified a potential workplace ergonomic related hazard, the next step in workplace analysis is conducting a detailed assessment. Assessment means taking a closer look at the job or work site to better understand the cause of the ergonomic related hazards and what steps are necessary to control the hazard. Assessment may include completing an ergonomic checklist, interviewing workers, or taking notes on job tasks that involve frequent heavy lifting, repetitive motions, awkward motions, or use of vibrating tools or equipment, etc.

15. Have jobs at this work site been assessed for ergonomics-related hazards?
1. Yes
 2. No [Skip to TEXT ABOVE QN 18]
 3. Don't know

4. Refused

16. What was the average time required per job to assess the causes and severity of the ergonomic related hazard and to determine what steps were necessary to reduce the hazard?

1. Zero to 30 minutes
2. 30 to 60 minutes
3. 1 hour to 2 hours
4. 2 hours to 4 hours
5. More than an 4 hours
6. Don't know
7. Refused

17. Who assessed the jobs with ergonomic related hazard at the work site? [CHECK ALL THAT APPLY]

1. Owner
2. Plant manager
3. Other plant supervisor
4. Human resources/Personnel department
5. Industrial hygienist or other health and safety personnel
6. Occupational or physical therapist
7. Occupational health nurse
8. Physician
9. Industrial engineer
10. Ergonomist
11. Outside consultant: _____ Private sector, _____ L&I.
12. Other _____
13. No one
14. Don't know
15. Refused

Subsection: Prevention and Workplace Modification of Ergonomic Related Hazards

The final step, which follows the identification and assessment of ergonomics related hazards, is reducing or eliminating the hazard. I would like to ask about any changes you have made or actions that you have taken, to fix ergonomics related hazards. This would include making any changes such as engineering controls (e.g. work station and tool design to accommodate the worker), work practices controls (e.g. modification of work techniques), administrative controls (e.g. providing more frequent pauses or rest periods) or providing personal protective equipment (e.g. kneepads, gloves and other protective equipment).

18. Have you made any changes to reduce or eliminate ergonomics related hazards at this work site?

1. Yes
2. No (IF Affirmative to QN9 OR 10 CONTINUE TO QN19, OTHERWISE SKIP AHEAD TO Text Above QN 36)
3. Don't know (IF Affirmative to QN9 OR 10 CONTINUE TO QN19, OTHERWISE SKIP AHEAD TO Text Above QN 36)
4. Refused (IF Affirmative to QN9 OR 10 CONTINUE TO QN19, OTHERWISE SKIP AHEAD TO Text Above QN 36)

19. I'm going to read a list of work place changes known as "engineering controls". Have you made any of the following changes?

1. Workstation redesign to fit the worker -such as raising or lowering the height of a workstation.
2. Tool and handle redesign -such as redesigning a tool to improve a hand grip.
3. Redesign of work method -such as using mechanical lifting devices or changing the weight of objects handled.
4. Other _____ [RECORD VERBATIM]
5. None (SKIP TO QN21)
6. Don't know (SKIP TO QN21)

7. Refused (SKIP TO QN21)
20. For which jobs have engineering controls been made?
1. [THE JOBS IDENTIFIED IN QN11 WILL APPEAR HERE]
 2. None
21. I'm going to read a list of work place changes known as work practice controls. Have you made any of these changes to reduce or eliminate ergonomics related hazards? [CHECK ALL THAT APPLY]
1. Change in work techniques
 2. Training and evaluation on the correct use and maintenance of tools
 3. Training and evaluation on correct work station use
 4. Training and evaluation on proper lifting techniques
 5. Providing a conditioning or break-in period for new or returning employees.
 6. Changing the number of workers available to do a task (such as adding employees to line)
 7. Other _____ [RECORD VERBATIM]
 8. None (SKIP TO QN23)
 9. Don't know (SKIP TO QN23)
 10. Refused (SKIP TO QN23)
22. For which jobs have these work practice controls been made?
1. [THE JOBS IDENTIFIED IN QN11 WILL APPEAR HERE]
 2. None
23. Were any of the following administrative controls made to reduce or eliminate ergonomics related hazards? [CHECK ALL THAT APPLY]
1. Provided more frequent pauses or rest periods
 2. Rotated employees out of ergonomically stressful jobs
 3. Changed job descriptions to enlarge the number and variety of tasks performed
 4. Reduced or eliminated mandatory overtime
 5. Reduced or eliminated voluntary overtime
 6. Adjusted assembly line speeds or production rates
 7. Eliminated incentive pay or piece work systems
 8. Other _____ [RECORD VERBATIM]
 9. None (SKIP TO QN25)
 10. Don't know (SKIP TO QN25)
 11. Refused (SKIP TO QN25)
24. For which jobs have administrative controls been made?
1. [THE JOBS IDENTIFIED IN QN11 WILL APPEAR HERE]
 2. None
25. To reduce ergonomics related hazards, were any of the following items of personal protective equipment provided?
1. Gloves and other protective clothing to protect against temperature extremes
 2. Gloves and other protective clothing to protect against vibration
 3. Back braces
 4. Cushioning floor mats
 5. Anti-fatigue shoe inserts
 6. Knee pads
 7. Other _____ [RECORD VERBATIM]
 8. None (SKIP TO CONDITIONAL STATEMENT BELOW QN26)
 9. Don't know (SKIP TO CONDITIONAL STATEMENT BELOW QN26)
 10. Refused (SKIP TO CONDITIONAL STATEMENT BELOW QN26)
26. For which jobs have personal protective equipment been provided to reduce or eliminate ergonomics related hazards?
1. [THE JOBS IDENTIFIED IN QN11 WILL APPEAR HERE]
 2. None

IF NO to all primary 'control' questions [QN 19, 21, 23, AND 25] SKIP TO TEXT ABOVE QN 36, OTHERWISE CONTINUE.

27. How long have you been using any of the four work place control strategies presented above to reduce or eliminate employee exposure to ergonomics related hazards?
1. Within the last year
 2. 1 to 2 years ago
 3. 3 to 5 years ago
 4. more than 5 years ago
 5. Don't know
 6. Refused
28. Were any of the four workplace controls strategies, evaluated to determine their effectiveness?
1. Yes
 2. No (SKIP TO QN31)
 3. Don't know (SKIP TO QN31)
 4. Refused (SKIP TO QN31)
29. Overall, which of the following types of ergonomic workplace controls were the most effective in reducing or eliminating ergonomics related hazards? [CHECK ALL THAT APPLY]
1. Engineering controls (e.g., workstation/work method/tool and handle design)
 2. Work practice controls (e.g., training)
 3. Administrative controls (e.g., job rotations, job enlargement)
 4. Personal protective equipment (e.g., gloves, braces)
 5. Don't know
 6. Refused
30. Overall, which of the ergonomic workplace controls were the least effective in reducing or eliminating the ergonomics related hazard? [CHECK ALL THAT APPLY]
1. Engineering controls
 2. Work practice controls
 3. Administrative controls
 4. Personal protective equipment
 5. Other _____ [RECORD VERBATIM]
 6. Don't know
 7. Refused
31. At this work site, what is the total expenditure to date for workplace controls to reduce or eliminate ergonomics-related hazards? Include all relevant labor and capital costs.
1. _____ [RANGE=0-\$50,000,000]
 2. Don't know
 3. Refused
32. Approximately how much do you expect to spend this year for ergonomics related workplace controls?
1. _____ [RANGE=0-\$50,000,000]
 2. Don't know
 3. Refused
33. Have you ever bought new equipment or modified existing equipment to fix ergonomics related hazard?
1. Yes
 2. No [SKIP TO TEXT ABOVE 36]
 3. Don't know [SKIP TO TEXT ABOVE 36]
 4. Refuse [SKIP TO TEXT ABOVE 36]
34. Did installing or modifying this equipment cause production interruptions?
1. Yes

2. No [SKIP TO TEXT ABOVE 36]
3. Don't know [SKIP TO TEXT ABOVE 36]
4. Refuse [SKIP TO TEXT ABOVE 36]

35. How significant were these production interruptions?

1. Less than 1 hour
2. 1-3 hours
3. 3-8 hours
4. More than 8 hours
5. Don't know
6. Refused

Section: Ergonomic Training and Education

Now I am going to ask you some questions about ergonomics training and education at your work site. The purpose of training and education is to make sure that employees understand the potential ergonomics related hazards at their jobs and are able to participate actively in their own job safety.

36. Do you provide training and education in the identification and prevention of ergonomics-related hazards?

1. Yes
2. No
3. Don't know
4. Refused

37. I'm going to read you a list of possible elements of ergonomics-related training and education for employees. I would like you to tell me whether you offer any of the following types of training for your employees? [CHECK ALL THAT APPLY]

1. How to identify exposure to ergonomic risk factors.
2. How to identify the early signs and symptoms of ergonomics-related injuries.
3. How to report symptoms of ergonomics-related injuries
4. Showing employees the proper use and procedures for tools, equipment or specific jobs
5. Features and functions of the employer's ergonomic efforts or programs
6. Other _____ [RECORD VERBATIM]
7. No ergonomics related training is provided (SKIP TO TEXT ABOVE QN 47)
8. Don't know (SKIP TO TEXT ABOVE QN 47)
9. Refused (SKIP TO TEXT ABOVE QN 47)

38. Who at this work site conducts the ergonomics training and education [CHECK ALL THAT APPLY]

1. Owner
2. Plant manager
3. Other plant supervisor
4. Human resources/Personnel department
5. Industrial hygienist or other health and safety personnel
6. Occupational or physical therapist
7. Occupational health nurse
8. Physician
9. Industrial engineer
10. Ergonomist
11. Outside consultant: _____ Private sector, _____ L&I.
12. Other _____
13. No one
14. Don't know
15. Refused

39. How many of your employees in the following categories HAVE received ergonomic training?

1. [THE LIST OF JOB CATEGORIES FROM QN4 APPEARS HERE]
2. None.
3. Don't know.

4. Refused.

40. At what point are employees given ergonomic training? [CHECK ALL THAT APPLY]

1. As needed
2. When initially hired
3. When transferred to a new job
4. On a periodic basis [GO TO QN 41]
5. Other _____[RECORD VERBATIM]
6. Don't know
7. Refused

[QN 41 ONLY IF QN40=4]

41. How often is periodic ergonomic training provided for employees? [CHECK ONLY ONE]

1. Every _____months
2. As needed
3. Don't know
4. Refused

42. For employees who require ergonomic training, how much time does the training typically require?

1. Less than 15 minutes
2. 15-30 minutes
3. 30 minutes to 1 hour
4. 1 to 4 hours
5. 4 to 8 hours
6. 8 to 16 hours
7. 16 to 40 hours
8. Over 40 hours
9. Don't know
10. Refused

43. Are records generally kept to document who has completed education and training on ergonomics?

1. Yes
2. No
3. Don't know
4. Refused

44. Who has responsibility for your overall ergonomics program at this work site? [CHECK ALL THAT APPLY]

1. Owner
2. Plant manager
3. Other plant supervisor
4. Human resources/Personnel department
5. Industrial hygienist or other health and safety personnel
6. Occupational or physical therapist
7. Occupational health nurse
8. Physician
9. Industrial engineer
10. Ergonomist
11. Outside consultant: _____ Private sector, _____ L&I.
12. Other _____
13. No one
14. Don't know
15. Refused

45. How many [EACH SELECTED CATEGORY IN QN 44] do you have?

46. What percentage of time do your [EACH SELECTED CATEGORY QN 44] spend on the ergonomic program during the year? _____%

END OF SURVEY – RESPONDENTS THAT COMPLETELY ANSWERED THE ERGO SECTION DO NOT HAVE TO GO THROUGH THE SAFETY SECTION!!!

Section: Accident Prevention Plan Surrogate Questions

[If QN9 AND QN10 and QN18 and QN37) = 'no', 'none', 'Don't know' or 'Refused']

The following questions relate to elements of the Accident Prevention Program.

Employers develop Accident Prevention Programs, commonly referred to as a Safety Programs, to address the safety needs and hazards of a particular work site. Safety programs typically contain information and training on first aid, reporting of injuries and safety hazards, use of personal protective equipment, and working with hazardous agents.

47. Does your work site have an Accident Prevention Program or Safety Program?

1. Yes
2. No
3. Don't know
4. Refused

48. How long ago did you start your Safety Program?

1. Within the last year
2. 1 to 2 years
3. 3 to 5 years
4. More than 5 years
5. Don't know
6. Refused

**IF NEGATIVE TO QN9 AND10 BUT POSITIVE TO QN36 OR 37, SKIP TO TEXT ABOVE QN 59.
CONTINUE IF POSITIVE OR NEGATIVE TO QN 9 & 10, BUT NEGATIVE TO QN 36 AND 37**

Subsection: Safety Training

49. Do you provide training in the identification and prevention of safety hazards?

1. Yes
2. No
3. Don't know
4. Refused

50. I'm going to read you a list of several different topics that could be covered in safety-related training sessions for employees. I would like you to tell me whether you offer any of the following training elements for your employees?

1. Reporting accidents and unsafe conditions, and first aid procedures.
2. Use and care of required personal protective equipment.
3. Proper actions to take if an emergency occurs, including exit routes and procedures.
4. Procedures for identifying hazardous chemical and safe practice programs.
5. None
6. Don't know
7. Refused

If "no", don't know' or 'refused' on QN 49 and "none" selected on QN 50 (two negative responses) then SKIP TO TEXT ABOVE QN59

51. How many of your employees in the following categories HAVE received safety training?

1. [THE LIST OF JOB CATEGORIES FROM QN4 APPEARS HERE]
2. None.
3. Don't know.
4. Refused.

52. At what point are employees given safety training? [CHECK ALL THAT APPLY]

1. As needed

2. When initially hired
3. When transferred to a new job
4. On a periodic basis [GO TO QN 53]
5. Other _____[RECORD VERBATIM]
6. Don't know
7. Refused

[QN 53 ONLY IF QN52=4]

53. How often is periodic safety training provided for employees? [CHECK ONLY ONE]

1. Every _____months
2. As needed
3. Don't know
4. Refused

54. For employees who require safety training, how much time does the training typically require?

1. Less than 15 minutes
2. 15-30 minutes
3. 30 min to 1 hour
4. 1 to 4 hours
5. 4 to 8 hours
6. 8 to 16 hours
7. 16 to 40 hours
8. Over 40 hours
9. Don't know
10. Refused

55. Who has responsibility for conducting the safety training sessions? [CHECK ALL THAT APPLY]

1. Owner
2. Plant manager
3. Other plant supervisor
4. Human resources/Personnel department
5. Industrial hygienist or other health and safety personnel
6. Occupational or physical therapist
7. Occupational health nurse
8. Physician
9. Industrial engineer
10. Ergonomist
11. Outside consultant: _____ Private sector, _____ L&I.
12. Other _____
13. No one
14. Don't know
15. Refused

56. How many [EACH CATEGORY CHOSEN IN QN 55] do you have?

57. What percentage of time do your [EACH CATEGORY CHOSEN IN QN55] spend on the safety program during the year?

_____ [RECORD VERBATIM]

58. For the various kinds of training described above, are records generally kept to document who has completed safety-related training?

1. Yes
2. No
3. Don't know
4. Refused

END OF SURVEY IF POSITIVE TO QN 9 or 10 & NEGATIVE TO QN 36 or 37. CONTINUE IF NEGATIVE TO QN 9 or 10

Section: Identifying jobs with safety hazards

Subsection: Safety hazard identification

As part of your Safety Program you may have carried out a workplace safety hazard analysis and gone through the following three steps: 1. Identifying potential safety hazards, 2. Assessing the causes and severity of the safety hazards and the necessary control measures and 3. Controlling the safety hazards. The initial safety hazard identification may stem from employee comments or a simple walk through.

59. Has a safety hazard analysis been conducted at your work site?
1. Yes.
 2. No (SKIP TO TEXT ABOVE QN 62)
 3. Don't know (SKIP TO TEXT ABOVE QN 62)
 4. Refused (SKIP TO TEXT ABOVE QN 62)
60. What was the average time per job spent identifying safety hazards at this work site?
1. Zero to 10 minutes
 2. 10 to 20 minutes
 3. 20 to 30 minutes
 4. 30 to 60 minutes
 5. More than an hour
 6. Don't know
 7. Refused
61. Who at the work site conducted the safety hazard identification? [CHECK ALL THAT APPLY]
1. Owner
 2. Plant manager
 3. Other plant supervisor
 4. Human resources/Personnel department
 5. Industrial hygienist or other health and safety personnel
 6. Occupational or physical therapist
 7. Occupational health nurse
 8. Physician
 9. Industrial engineer
 10. Ergonomist
 11. Outside consultant: _____ Private sector, _____ L&I.
 12. Other _____
 13. No one
 14. Don't know
 15. Refused

Subsection: Assessing jobs with safety hazards

If a safety hazard is identified the next step is assessing the safety hazard. This step is more focused than the identification step and involves assessing the causes and severity of the safety hazard and determining what is necessary to reduce or eliminate the hazard.

62. Have you assessed work place jobs or tasks for safety related hazards?
1. Yes
 2. No [SKIP TO TEXT ABOVE QN 65]
 3. Don't know [SKIP TO TEXT ABOVE QN 65]
 4. Refused [SKIP TO TEXT ABOVE QN 65]
63. Can you give an estimate of the average time per job required to assess the causes and severity of the hazard and what steps were necessary to reduce a typical job hazard?
1. Zero to 30 minutes
 2. 30 to 60 minutes
 3. 1hour to 2 hours
 4. 2hours to 4 hr
 5. More than an 4 hours

6. Don't know (Skip to TEXT ABOVE QN 65)
7. Refused (Skip to TEXT ABOVE QN 65)

64. Who conducted the safety hazard assessment step of the safety hazard analysis for this work site?
[CHECK ALL THAT APPLY]

1. Owner
2. Plant manager
3. Other plant supervisor
4. Human resources/Personnel department
5. Industrial hygienist or other health and safety personnel
6. Occupational or physical therapist
7. Occupational health nurse
8. Physician
9. Industrial engineer
10. Ergonomist
11. Outside consultant: _____ Private sector, _____ L&I.
12. Other _____
13. No one
14. Don't know
15. Refused

END OF SURVEY IF QN 18 OR 19 IS POSITIVE (Ergonomics control section completed).

Subsection: Control of safety hazard

Following the identification and assessment steps is the controlling of the safety hazard. The control of the hazard may have involved engineering controls (new equipment or modifying equipment), work practice controls (additional training, evaluation of equipment use, etc.) administrative controls (how the workplace is organized).

65. Have you ever bought new equipment or modified existing equipment to control a safety hazard?

1. Yes
2. No (END OF SURVEY)
3. Have not had to control a safety hazard (END OF SURVEY)
4. Don't know (END OF SURVEY)
5. Refuse (END OF SURVEY)

66. Did installing or modifying this equipment cause production interruptions?

1. Yes
2. No (END OF SURVEY)
3. Don't know (END OF SURVEY)
4. Refuse (END OF SURVEY)

67. How significant were these production interruptions?

1. Less than 1 hour
2. 1 to 3 hours
3. 3 to 8 hours
4. More than 8 hours.
5. Don't Know
6. Refused

END OF SURVEY